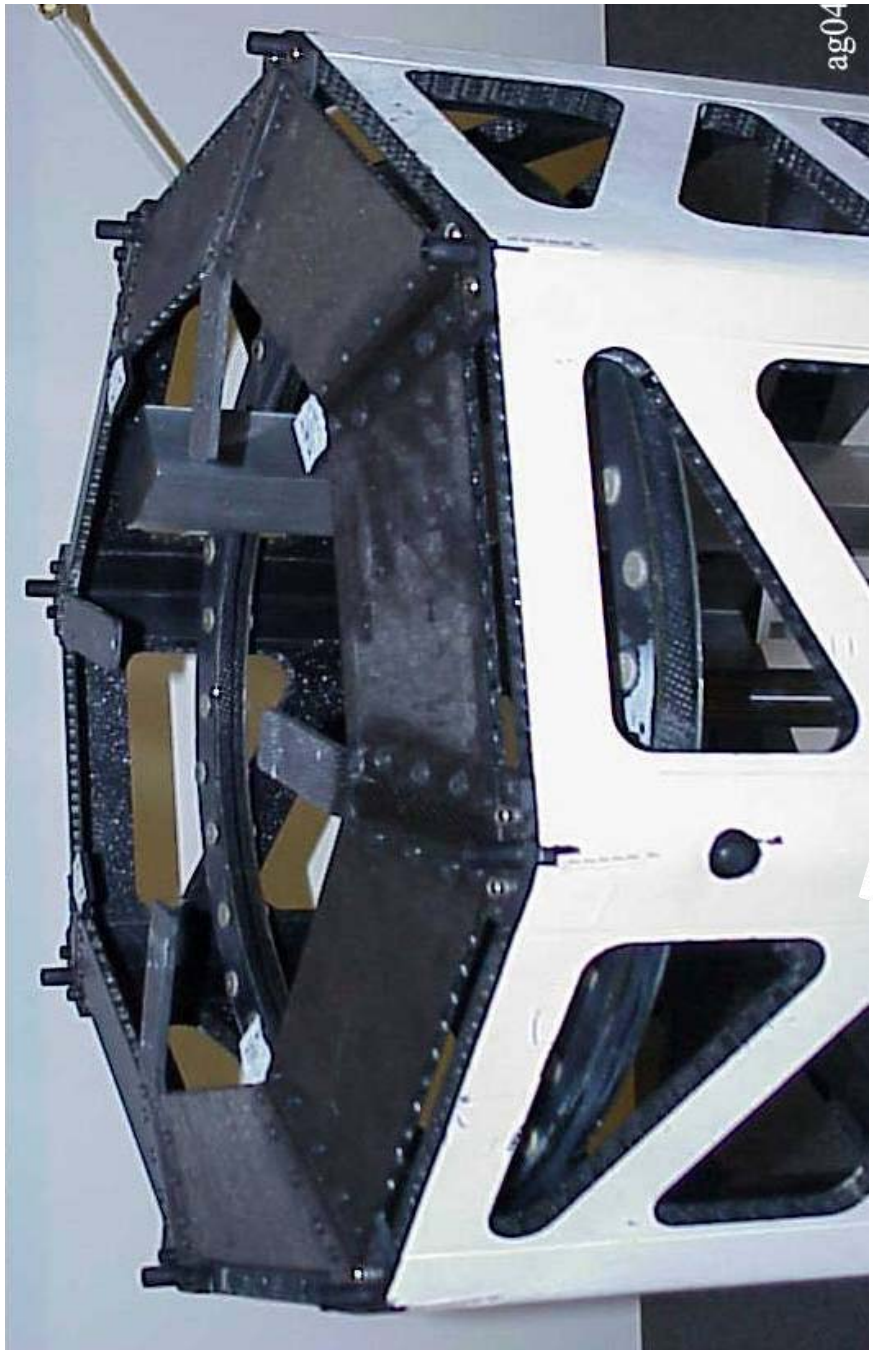
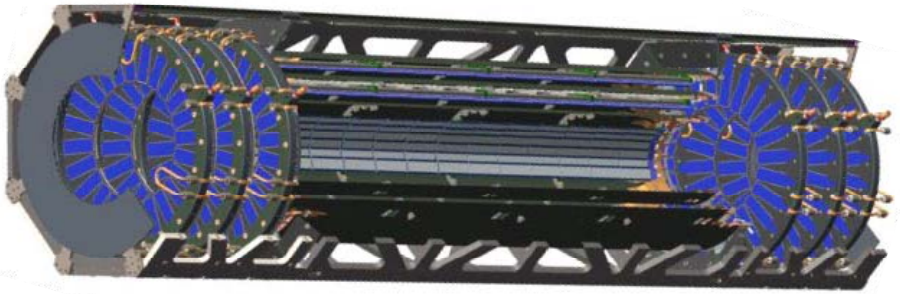
U.S. ATLAS Project Progress- 2nd Quarter FY 2002



Below- ATLAS Inner Detector Pixel and Silicon Strip system efforts are led by LBNL. Pixel work includes mechanics, sensors and electronics. Computer model below shows Pixel System global support structure (cut-away) and pixel disk ring structures at each end. These Inner Detector elements are close to the collision point and utilize silicon semi-conductor components (e.g. tiny pixels or long strips) to produce electronic signals resulting from the interaction of charged particles with the silicon.



Left- A global support structure and disk ring prototype assembly at LBNL. These systems were approved for production at LBNL in February '02.

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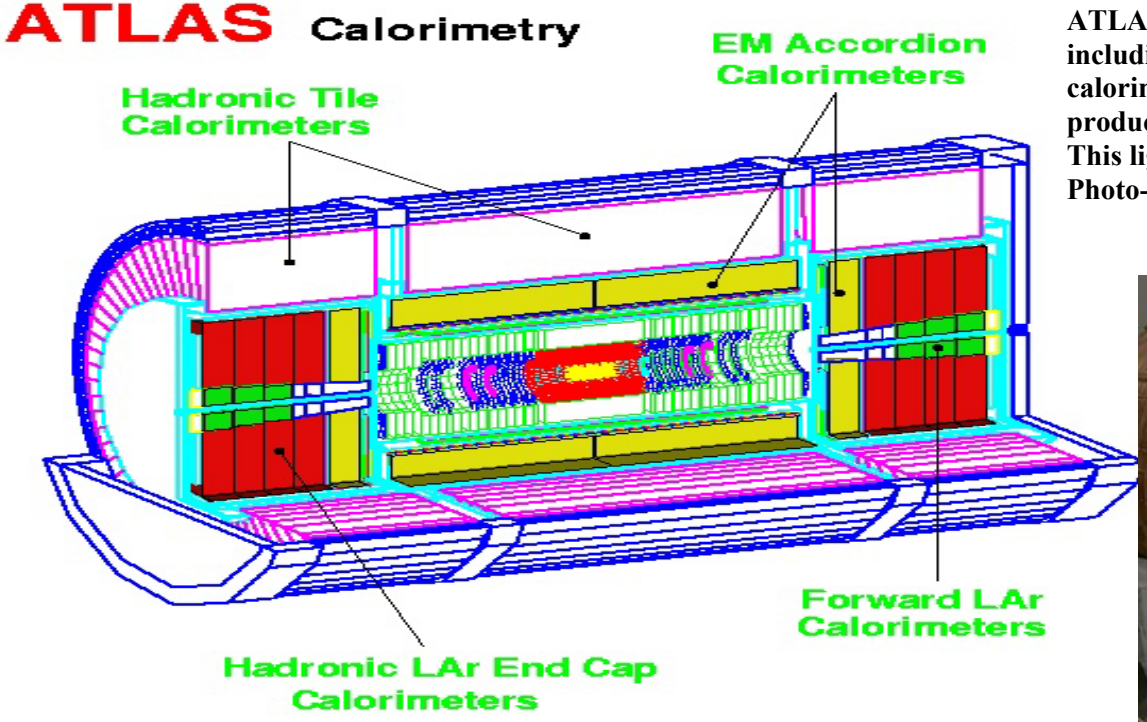
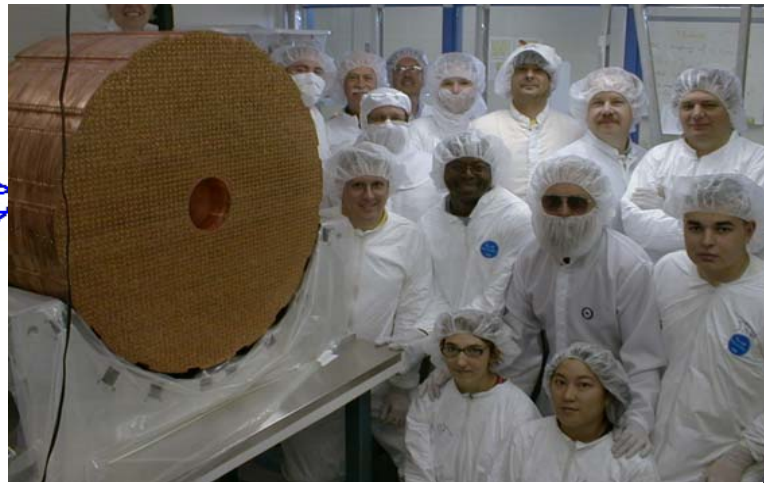
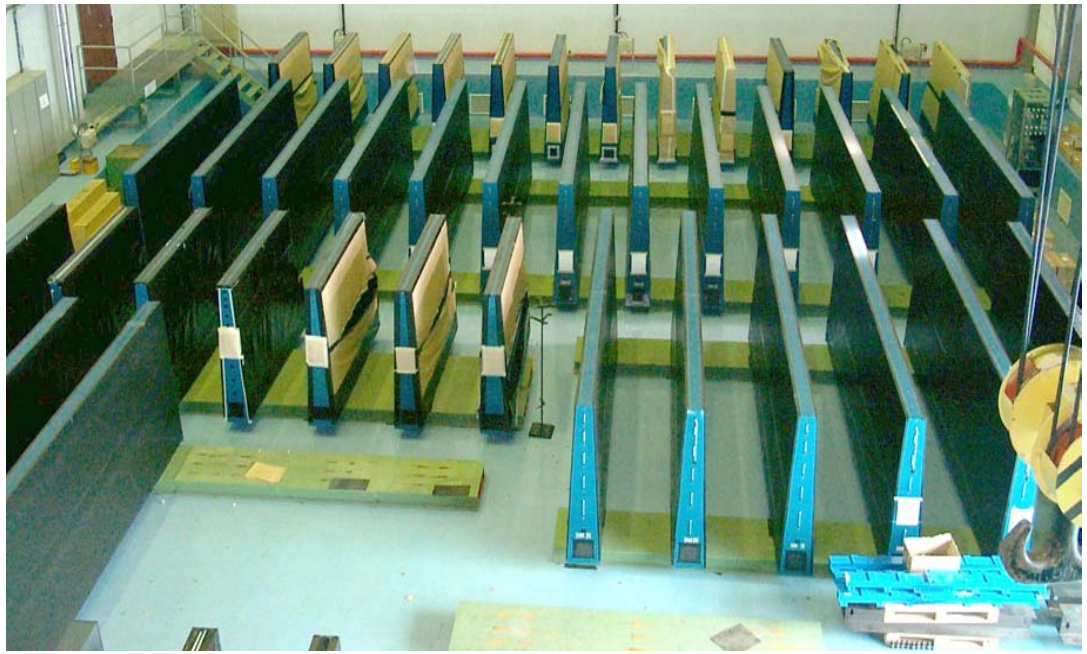


ATLAS Calorimeter elements are shown schematically at left, including the Hadronic Tile Calorimeter and Forward calorimeter. Particles interact with the calorimeter material to produce showers that induce photon emissions from scintillators. This light is proportional to incident energy, and is recorded by Photo-Multiplier Tubes surrounding the calorimeter.





Above- Mechanical assembly of first Forward Calorimeter module has been completed at the University of Arizona. Module consists of a stack of 18 round copper plates, each about one inch thick, 90 cm in diameter, with 12260 precision drilled holes in it, to accommodate a tube/rod electrode assembly. This module is in the process of being packed up for shipment to CERN, to arrive July 2002. There are two ATLAS Forward Calorimeter assemblies, each one made up of three such modules (shown in solid green on drawing above left).

Left- Hadronic Tile Calorimeter modules delivered to CERN. All standard submodule construction activities have been completed at ANL. 52 of 64 complete modules have been fully assembled and 42 have been shipped to CERN.

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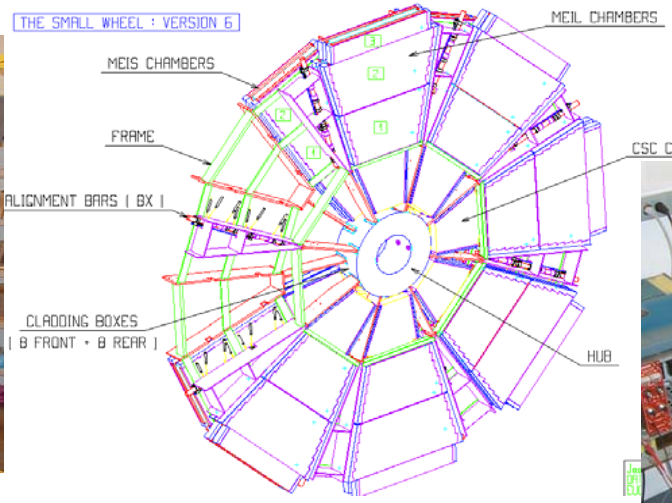

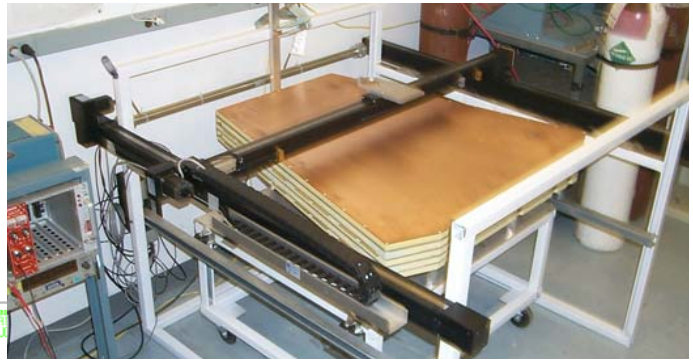

Left- Drawing of ATLAS "Small Wheel" endcap structure onto which U.S. produced Muon Chambers will be mounted.

The U.S. is producing two types of Muon Chambers—Monitored Drift Tube (MDT) Chambers such as that produced by the University of Washington-Seattle (above left) and Cathode Strip Chambers (CSC) such as that produced by BNL (above). 4 of 32 required CSC's have been produced and are being tested by BNL. Production of MDT chambers is well along, with 103 of 240 MDT chambers produced by the University of Michigan, University of Washington, and the Boston Muon Consortium made up of several Northeast universities. Left- Two one-eighth sections of Endcap Wheel assemblies are shown at the CERN Test Beam area, mounted with a Muon Chamber model. Muon Chambers delivered to CERN will be mounted on these wheel sections to be tested under beam-on conditions.